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August 12, 1994

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Mr. William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: PR Docket No. 93-61 - Automatic Vehicle Monitoring (AVM)

Dear Mr. Caton:

The staffs of the Office of Engineering and Technology and the Private Radio Bureau have informally sought comment from Amtech Corporation on a prospective resolution of this proceeding that is summarized in the attachment to this letter. The summary reflects Amtech's understanding of the staff proposals, which were conveyed orally. The staff proposal represents a sincere effort at reaching a solution, but it fails to meet the public need for advanced local-area AVM and should be rejected.

Bandwidth for Local-Area AVM

The proposal calls for two 2 MHz sub-bands and a 10 MHz sub-band for local-area AVM (902 - 904, 910 - 920, and 926 - 928 MHz). Currently, most local-area AVM is licensed in two 8 MHz sub-bands, with additional local-area systems licensed in other parts of the 902 - 928 MHz band. Thus, the proposal would represent a net decrease of spectrum for local-area AVM at a time when local-area AVM is being used to serve some one million highway vehicles and over a million rail vehicles, figures that continue to grow steadily.

The greatest problem with the proposed bandplan is that it fails to accommodate the need for a new generation of read-write tags and readers being built to satisfy an open specification implemented by the California Department of Transportation -- a specification that is being adopted or considered by an increasing number of state agencies. For example, the Kansas Turnpike Authority is now evaluating such a system for use on Kansas turnpikes that would utilize the new Intellitag™ product built to meet the Cal-Trans specification, which was developed in conjunction with the Lawrence Livermore National Laboratory working on behalf of California.

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List A B C D E

The read-write technology, specifically designed for the 902 - 928 MHz band, requires a 6 MHz wide channel. Fortunately, two 6 MHz wide channels can accommodate most toll environments because the new system utilizes very high speed signalling and can, therefore, lend itself to time-multiplexing across multiple lanes. Public safety interests, however, have identified the need for another 6 MHz wide channel that would be used in various ways, such as to allow portable readers to identify vehicles, including those in the vicinity of toll plazas but outside of the reading range of the readers at the toll plaza. Because of their portable nature, such readers would not operate as part of the multiplexing system used to hardwire together the readers at each lane. The third channel might also be used as a highway beacon to identify and communicate with passing cars. Thus, as Amtech has often noted in this proceeding, a means for accommodating three such channels is needed. As Amtech has heretofore discussed, it may be possible to satisfy this requirement in a 16 MHz local-area allocation if reasonable allowances are made for the attenuation of sideband emissions into adjacent sub-bands within the 902 - 928 MHz band. Amtech's experience has also been that it will be possible to share spectrum with at least certain of the wide-area AVM technologies.

Regardless of the ultimate band plan adopted, at a minimum, the rules should accommodate the use of two 6 MHz channels for read-write tags and, preferably, a third such channel that can be used at least on a portable basis. If the spectrum is to be shared with wide-area systems, it would also be preferable to be able to have some room within a given sub-band to shift the center frequency of the tag reader so as to facilitate the mutual resolution of any incompatibilities.

Part 15

To date, Amtech has not found Part 15 devices to be an interference problem. Nevertheless, because of the important public safety and public revenue generating aspects of electronic toll and traffic management systems, Amtech urges the Commission to maintain the hierarchy now set forth in the AVM rules. Such an approach will also minimize the litigation risks associated with a precipitous change in the regulations that would alter the long held regulatory framework that has permitted unlicensed operations to develop provided that they do not cause interference to licensed systems.

Auctions

Amtech is concerned that the staff's proposal to auction spectrum to wide-area systems in this particular band will have an adverse effect on the part of the AVM industry that is serving orders of magnitude more people than wide-area AVM. First, the amount of spectrum proposed for auctions -- two 6 MHz sub-bands -- could

accommodate two channels of the high data rate read-write tags that have now been developed. The staff proposal, however, would not permit local-area AVM to use these two sub-bands. Secondly, most operators of local-area systems, apart from the railroads, are state and local government bodies. To the extent that spectrum in these two sub-bands is auctioned, state and local governments would not be able to acquire any rights to it even if local-area operations were permitted. Moreover, it is inevitable that if spectrum in the 902 - 928 MHz band is auctioned, those who purchase it will push hard to have all other operations removed from such sub-bands. This will not only exacerbate any grandfathering issues, it will also crowd remaining users into even less spectrum than is available to them now.

Grandfathering and Transitions

As Amtech understands it, the staff proposal is silent as to grandfathering rights. Absent an extraordinary showing of incompatibility, the public interest would be ill-served by any change that fails to accommodate the public substantial investment in local-area technology. Thus, any resolution should grandfather on a co-primary basis existing local-area operations indefinitely. Local-area systems should be required to move only in cases of actual harmful interference when the licensees cannot resolve such interference pursuant to sharing guidelines such as are now currently embodied in Section 90.173(b) of the FCC's Rules, and then only at the wide-area system operator's expense. There should also be a transition period of three years during which local-area systems could still be deployed in the 904 - 912 and 918 - 926 MHz bands under the interim rules so as to accommodate systems now in the design and application state in order that public procurements not be affected adversely.

Next Steps

The Commission has before it a record and other band plan proposals advanced by Amtech that would permit it to go to a report and order in ways that would accommodate the requirements of local-area AVM as described above, meet the needs for competitive wide-area AVM service through systems that can time-share with each other and those that cannot, and provide a large measure of assurance to Part 15 that there will be spectrum in which their operations can be carried out with a high degree of compatibility but with no change in the basic hierarchy. Unless such a plan is adopted, however, the Commission should seek further comments on the issues in this proceeding before going forward. To move to a report and order with a bandplan and

a change in the interference hierarchy that fail to meet both current and future needs will ultimately delay the resolution of the issues raised in this rulemaking even more.

An original and one copy of this letter is being filed as required by Section 1.1206(a)(1) of the Commission's rules on *ex parte* communications.

Respectfully,

David E. Hilliard

David E. Hilliard
Attorney for Amtech
Corporation

Attachment

cc: See attached list

FCC Staff Proposal

The following summarizes the oral proposal made by the FCC staff. The concept advanced by the PRB and OET staffs calls for a band plan that would have the following conditions:

902 - 904 MHz	Local area AVM with Part 15 secondary
904 - 910 MHz	Wide area multilateration AVM with Part 15 secondary in accordance with the conditions laid out below
910 - 920 MHz	Local area AVM with Part 15 secondary; wide area multilateration AVM is secondary to local area AVM and "co-equal" with Part 15
920 - 926 MHz	Wide area multilateration AVM with Part 15 secondary in accordance with the conditions laid out below
926 - 928 MHz	Local area AVM with Part 15 secondary

The two six MHz bands would be auctioned according to the staff.

In re Part 15: The FCC would define harmful interference to wide area AVM operating in the 904 - 910 and 920 - 926 sub-bands to be capable of occurring whenever the Part 15 operations met one or more of the following criteria:

1) Operates with an outdoor antenna 5 meters or more above ground level;

2) Operates as a field disturbance sensor (i.e. per Section 15.245); or

3) Operates with a directional antenna having >6 dBi of gain and produces more than 4 watts eirp.[1]

If the Part 15 operation meets one or more of these criteria, it is to be deemed capable of causing harmful interference to the wide-area AVM system and thus must eliminate the harmful interference if the wide-area AVM licensee complains. Other Part 15 operations would be deemed **incapable** of causing harmful interference.

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[1] Section 15.247 of the Rules now provides that antenna gain for spread spectrum devices is limited to 6 dBi unless the output power is reduced below 1 watt so as to limit the eirp to no more than would be produced using 1 watt into a 6 dBi gain antenna. This provision applies to all spread spectrum devices manufactured or imported on or after June 23, 1994. Thus, there is some unknown population of devices in inventory or in the field that exceeds the 6Bi limitation and would be presumed to cause interference in these sub-bands.

In the 910 - 920 MHz band, wide area multilateration AVM and Part 15 would each have to accept any interference received from the other. Both would have an obligation to avoid causing harmful interference to local area AVM.

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